

1. Fluid treatment apparatus for a selected fluid of doubtful purity, comprising:

- a) a fluid treatment chamber having fluid input/output means for introducing a selected doubtful-purity fluid;
- b) a sealed microdischarge array mounted in said fluid treatment chamber in effective radiation proximity to said selected fluid; and
- c) a power source connectable to said microdischarge array effective to cause emission of purifying radiation to said selected fluid.

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2. Apparatus according to Claim 1, optimized for live micro-organisms as the likely pollutant in the selected fluid.

3. Apparatus according to Claim 1, wherein said sealed microdischarge array provides at least one of ultraviolet and visible light as the effective radiation for fluid treatment.

4. Apparatus according to Claim 1, wherein said sealed microdischarge array is flexible.

5. Apparatus according to Claim 4, wherein said sealed microdischarge array comprises:

an enclosing treatment chamber; and
a plastic film with an array of via-hole sites, with electrical connections at each via-hole site providing electrical power to juxtaposed cathode and anode conductors, sealed for radiation producing discharge in a radiation-producing atmosphere within said treatment chamber.

10 6. Apparatus according to Claim 5, wherein said sealed microdischarge array is configured within said fluid treatment chamber for effective radiation exposure of the selected fluid and for effective fluid flow.

7. Apparatus according to Claim 6, wherein said sealed microdischarge array is configured as a spiral.

8. Apparatus according to Claim 6, wherein said sealed microdischarge array is configured as parallel plates.

9. Apparatus according to Claim 7, wherein said sealed microdischarge array has been effectively evacuated and subsequently backfilled with a selected emission material.

10. Apparatus according to Claim 9, wherein said selected emission material is XeI.

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11. Apparatus according to Claim 9, wherein said selected emission material is primarily a noble gas of high purity at a pressure in the range 1-2 atmospheres.

12. Apparatus according to Claim 12, wherein said selected emission material is primarily a noble gas of high purity at a pressure which is just sufficient to prevent collapse by the pressure of the surrounding fluid.

13. Apparatus according to Claim 9, wherein said selected emission material emits in the range of the 250-260 nm Hg resonance peak.

14. Apparatus for personal water purification, formed as a water treatment chamber with input and output, with electrical power means, and with a microdischarge array positioned in said treatment chamber to emit purifying radiation when electrically activated, such water treatment chamber and such microdischarge array being dimensioned and juxtaposed so that purifying radiation impinges on all the water in the water treatment chamber.

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15. Apparatus for personal water purification, according to Claim 14, and formed as cylinder with in-line input, filter, treatment chamber and output.

16. Apparatus for personal water purification, according to Claim 14, formed as a large canteen, having indicating means, filter, .collapsible outer walls and interior access means.

17. Apparatus according to Claim 1, further comprising separation assurance means for fluid flow in restricted channels adjacent to said sealed flexible microdischarge array to keep all fluid within effective radiation range.

18. Apparatus according to Claim 17, wherein said separation assurance means is at least one of a set of spiral separators, a set of chain separators, and a set of rod separators.